

Serial No. 10/670,806
Atty. Doc. No. 2001P04429WOUS

Amendments To The Claims:

Please amend the claims as shown.

1. (currently amended) A burner apparatus for burning fuel and air to a combustion gas comprising:
 - a premixing chamber for premixing the fuel and the air with an air inlet for the air to enter said premixing chamber and having a cross-sectional area;
 - a fuel inlet for the fuel to enter said premixing chamber; and an outlet for a mixture of the air and the fuel to exit said premixing chamber,
 - wherein said fuel inlet is located between said air inlet and said outlet, further comprising at least one air blocking member situated at the air inlet which blocks a portion of the air flow and which cooperates with the fuel inlet to create a region having a locally enriched fuel mixture toward a wall of the burner, the locally enriched fuel mixture producing a locally higher combustion temperature effective to suppress a formation of combustion vibrations and to reduce an amount of carbon monoxide produced during combustion when compared to combustion in said burner apparatus with no such air blocking member.
2. (previously presented) The burner apparatus according to claim 1, wherein said air inlet has in said cross-sectional area an outer periphery and said at least one blocking member located at the outer periphery.
3. (previously presented) The burner apparatus according to claim 2, wherein said at least one blocking member extends towards a main axis of said apparatus.
4. (previously presented) The burner apparatus according to claim 3, wherein said at least one blocking member has at said outer periphery a width which decreases towards said main axis.
5. (previously presented) The burner apparatus according to claim 4, wherein said width decreases continuously towards said main axis.

2001P04429WOUS OAR Dec 2005

Serial No. 10/670,806
Atty. Doc. No. 2001P04429WOUS

6. (previously presented) The burner apparatus according to claim 5, wherein said at least one blocking member has a triangular, a trapezoidal or a partially hyperbolic, elliptic or circular shape.

7. (previously presented) The burner apparatus according to claim 3, comprising a pilot burner centered to and extending a long said main axis for igniting said mixture of fuel and air.

8. (cancelled).

9. (previously presented) The burner apparatus according to claim 3, comprising a perforated plate in said cross-sectional area to which said at least one blocking member is bound.

10. (previously presented) The burner apparatus according to claim 3, wherein at least four blocking members are distributed irregularly in said cross-sectional area.

11. (previously presented) The burner apparatus according to claim 1, wherein the burner apparatus is located within a combustion chamber of a combustion turbine.

12. (previously presented) The burner apparatus according to claim 11, wherein during operation in said combustion chamber at least one recirculation zone with recirculating combustion gas develops and said locally hot stream of combustion gas caused by said blocking member lies at least partially within said recirculation zone.

13. (previously presented) The burner apparatus according to claim 1, wherein the fuel is a fluidical fuel.

14. (previously presented) The burner apparatus according to claim 1, wherein said at least one blocking member covers less than 30% of said cross-sectional area of said air inlet.

2001P04429WOUS OAR Dec 2005

Serial No. 10/670,806
Atty. Doc. No. 2001P04429WOUS

15. (previously presented) The burner apparatus according to claim 13, wherein the fluidical fuel is gas or oil.

16. (previously presented) The burner apparatus according to claim 14, wherein said at least one blocking member cover between 2% and 20% of said cross-sectional area of said air inlet.

17. (cancelled).

18. (previously presented) The burner apparatus according to claim 1, wherein a portion of the recirculation zone develops at the outer periphery of the outlet.

19. (previously presented) The burner apparatus according to claim 1, wherein the blocking member is situated for stabilizing a burner premixing flame by locally blocking the flow of the air entering said premixing chamber so that downstream of said outlet a locally inhomogeneous fuel concentration results which generates a locally hot stream of combustion gas that is hotter than the average flame temperature.

20. (previously presented) The burner apparatus according to claim 1, wherein the blocking members are arranged asymmetrically on the periphery of the air inlet.

2001P04429WOUS OAR Dec 2005

Serial No. 10/670,806
Atty. Doc. No. 2001P04429WOUS

21. (currently amended) A burner apparatus for burning fuel and air to a combustion gas comprising:

a premixing chamber having a ring channel for premixing the fuel and the air with an air inlet, the air inlet having an annulus cross-sectional area inclined to a main axis for the air to enter the premixing chamber and having a cross-sectional area, and in the cross-sectional area an outer periphery;

a fuel inlet for the fuel to enter the premixing chamber;

a swirl element disposed in the ring channel for imposing a momentum to the flow of air and for feeding the fuel in the air; and

an outlet for a mixture of the air and the fuel to exit the premixing chamber wherein the fuel inlet is located between the air inlet and the outlet and further comprising at least one air blocking member that is situated at the air inlet, located at the outer periphery, and extending towards the main axis of the apparatus, for stabilizing a burner premixing flame by locally blocking the flow of the air entering the premixing chamber and cooperating with the fuel inlet so that downstream of the outlet a locally inhomogeneous fuel concentration results which generates a locally hot stream of combustion gas that is hotter than the average flame temperature and is effective to suppress a formation of combustion vibrations and to reduce an amount of carbon monoxide produced during combustion when compared to combustion in said burner apparatus with no such air blocking member.

2001P04429WOUS OAR Dec 2005

Serial No. 10/670,806
Atty. Doc. No. 2001P04429WOUS

22. (new) A burner apparatus comprising:
a premixing chamber receiving a flow of air;
a fuel inlet disposed in the premixing chamber for delivering a flow of fuel into the flow of air;

an air blocking member locally blocking the flow of air upstream of the fuel inlet so that a fuel-air mixture produced at an outlet of the premixing chamber is generally homogeneous except for a discrete region affected by the air blocking member wherein a higher concentration of fuel to air is generated; and

a combustion chamber downstream of the premixing chamber and receiving and combusting the fuel-air mixture to produce a combustion gas;

wherein combustion of the discrete region of higher concentration of fuel to air produces a region of locally higher combustion temperature effective to suppress a formation of combustion vibrations and to reduce an amount of carbon monoxide produced during combustion when compared to combustion in said burner apparatus with no such air blocking member.

23. (new) The burner apparatus of claim 22, further comprising:
a recirculation zone established in the combustion chamber; and
the air blocking member disposed such that the region of locally higher combustion temperature at least partially enters the recirculation zone.